

CLAIM(S):

1. A method for three-dimensional modeling comprising the steps of heating a build chamber to an elevated temperature, dispensing modeling material from an outlet of a dispensing head onto a base provided in the build chamber, and moving the dispensing head and the base in three-dimensions with respect to one another in synchrony with the dispensing of modeling material so as to build up a three-dimensional object of predetermined shape on the base, characterized by:
maintaining physical and thermal separation between the heated build chamber and a gantry that controls motion of the dispensing head.
2. The method of claim 1, wherein the gantry further controls motion of the base.
3. The method of claim 1, and further characterized by:
maintaining physical and thermal separation between the heated build chamber and a lift that controls motion of the base.
4. The method of claim 1, wherein the build chamber is heated to a temperature greater than 200°C.
5. The method of claim 1, wherein the dispensing head is moved in an x-y plane and the base is moved along a z-axis.
6. The method of claim 1, and further characterized by:
providing a feedstock of modeling material to an inlet of the dispensing head located external to the build chamber.

7. The method of claim 1, wherein the build chamber is heated by convection such that an air flow pattern is created in the build chamber, and further characterized by:
 - deflecting air in the flow pattern towards the dispensing head outlet.
8. A method for three-dimensional modeling comprising the steps of:
 - heating a build chamber to an elevated temperature;
 - dispensing modeling material from an outlet of a dispensing head
 - onto a base provided in the build chamber;
 - moving the dispensing head and the base in three-dimensions with respect to one another in synchrony with the dispensing of modeling material so as to build up a three-dimensional object of predetermined shape on the base;
 - controlling the motion of the dispensing head and the base with motion control components located external to the build chamber; and
 - maintaining thermal isolation between the external motion control components and the build chamber.
9. The method of claim 8, wherein the build chamber is heated to a temperature greater than 150 °C.
10. The method of claim 8, wherein the build chamber is heated to a temperature greater than 200°C.
11. The method of claim 8, wherein the dispensing head is moved in an x-y plane and the base is moved along a z-axis.

12. The apparatus of claim 8, and further comprising the step of:
providing a feedstock of modeling material to an inlet of the
dispensing head located external to the build chamber.
13. The method of claim 8, wherein the build chamber is heated by
convection such that an air flow pattern is created in the build chamber, and further
characterized by:
deflecting air in the flow pattern towards the dispensing head outlet.
14. A method for three-dimensional modeling comprising the steps of:
heating a build chamber to an elevated temperature;
dispensing modeling material from an outlet of a dispensing head
onto a base provided in the build chamber; and
moving the dispensing head and the base in three-dimensions with
respect to one another in synchrony with the dispensing of
modeling material so as to build up a three-dimensional
object of predetermined shape on the base;
wherein the motion of the dispensing head and the base are
controlled by motion control components located external to
and in thermal isolation from the build chamber.
15. The method of claim 14, wherein the build chamber is heated to a
temperature greater than 150 °C.
16. The method of claim 14, wherein the build chamber is heated to a
temperature greater than 200°C.

17. The method of claim 14, wherein the dispensing head is moved in an x-y plane and the base is moved along a z-axis.
18. The method of claim 14, and further comprising the step of:
providing a feedstock of modeling material to an inlet of the dispensing head located external to the build chamber.
19. The method of claim 14, and further comprising the step of:
removing a build-up of modeling material from the dispensing head outlet by driving the dispensing head outlet against a rotating member of a cleaning assembly.